

WHAT IS CLAIMED IS:

1. An apparatus for sealing a passage through tissue,
comprising:

an elongate member having a proximal end and a distal end;

5 and

a generally cylindrical plug member disposed on the distal
end of the elongate member, the plug member comprising a helical
thread on its outer surface.

2. The apparatus of claim 1, wherein the plug member is at
least partially tapered at its distal end.

3. The apparatus of claim 1, wherein the plug member
comprises a cavity in its distal end.

4. The apparatus of claim 3, further comprising at least
one of a hemostasis-promoting material and an infection-resistant
material is disposed in the cavity.

5. The apparatus of claim 4, wherein the material
comprises intestinal submucosa.

6. The apparatus of claim 1, further comprising at least one of a hemostasis-promoting material and an infection-resistant material secured to a distal end of the plug member.

5 7. The apparatus of claim 1, wherein the plug member is releasable from the elongate member.

8. The apparatus of claim 7, wherein the elongate member comprises an actuator for releasing the plug member from the
0 distal end of the elongate member.

9. The apparatus of claim 7, further comprising
cooperating connectors on the distal end of the elongate member
and on the plug member for releasably securing the plug member to
15 the distal end of the elongate member.

10. The apparatus of claim 7, wherein the plug member
comprises an interior cavity, and wherein the elongate member
comprises an engagement element extending from the distal end
20 thereof for insertion into the cavity, the engagement element
being expandable and collapsible for engaging and disengaging an
interior wall of the plug member, thereby selectively securing

the plug member to and releasing the plug member from the distal end of the elongate member, respectively.

11. The apparatus of claim 10, wherein the engagement
5 element comprises a mechanically expandable frame.

12. The apparatus of claim 10, wherein the engagement
element comprises an inflatable member.

13. The apparatus of claim 10, wherein the plug member is
sufficiently rigid such that the plug member is substantially
self-supporting when the engagement member is collapsed.

14. The apparatus of claim 7, wherein the plug member
5 comprises bioabsorbable material.

15. The apparatus of claim 1, wherein the plug member is
substantially permanently attached to the distal end of the
elongate member.

16. The apparatus of claim 1, further comprising a lumen extending from the proximal end of the elongate member through the plug member, and a seal for selectively sealing the lumen.

5 17. A device for sealing a passage through tissue, comprising a generally cylindrical body formed from a bioabsorbable material, the body comprising a proximal end, a distal end, and a helical thread on an outer cylindrical surface extending at least partially between the proximal and distal ends.

18. The device of claim 17, wherein the plug member is at least partially tapered towards the distal end.

15 19. The device of claim 17, further comprising a connector on the proximal end for detachably securing the plug member to a delivery apparatus.

20 20. The device of claim 17, wherein the body further comprises an internal cavity communicating with an opening in the proximal end.

21. A device for sealing a passage through tissue,
comprising a generally cylindrical body formed from a
biocompatible material, the body comprising a proximal end, a
distal end, and a substantially rigid helical thread on an outer
5 cylindrical surface extending at least partially between the
proximal and distal ends.

22. The device of claim 21, wherein the body is at least
partially tapered at its distal end.

23. The device of claim 21, wherein the body comprises a
cavity in its distal end.

24. The device of claim 23, further comprising a
15 hemostasis-promoting material disposed in the cavity.

25. The device of claim 24, wherein the material comprises
intestinal submucosa.

20 26. The device of claim 21, further comprising a connector
on the proximal end for detachably securing the body to a
delivery apparatus.

27. The device of claim 21, further comprising an elongate shaft extending from the proximal end of the body.

5 28. A method for sealing a passage through tissue, comprising:

providing an apparatus comprising an elongate member and a generally cylindrical plug member disposed on a distal end of the elongate member, the plug member comprising an outer surface including a helical thread;

inserting the plug member into the passage; and

rotating the elongate member, thereby threading the plug member within the passage, the plug member engaging the tissue to substantially seal the passage.

29. The method of claim 28, wherein the passage communicates with a blood vessel within the tissue, and wherein the elongate member is rotated until the plug member substantially seals a wall of the blood vessel.

30. The method of claim 29, wherein the plug member is left within the passage for sufficient time for hemostasis to occur.

31. The method of claim 30, further comprising removing the plug member from the passage.

5 32. The method of claim 31, wherein a hemostasis-promoting material is provided within a cavity in a distal end of the plug member, and wherein the material is left in the passage when the plug member is removed.

10 33. The method of claim 28, wherein the elongate member is rotated until it engages a blood vessel within the tissue, and wherein the method further comprises:

monitoring blood flow through the blood vessel;

15 rotating the elongate member to thread the plug member into the passage until blood flow substantially ceases through the blood vessel; and

reversing rotation of the elongate member to back the plug member a predetermined distance, thereby allowing blood flow to resume through the blood vessel.

20 34. The method of claim 28, further comprising releasing the plug member from the elongate member within the passage.

35. The method of claim 34, wherein the plug member comprises a bioabsorbable material, and wherein the method further comprises leaving the plug member within the passage
5 until it is absorbed by the tissue.

36. The method of claim 28, wherein the elongate member includes a lumen extending from its proximal end through the plug member.

37. The method of claim 36, further comprising monitoring fluid flow through the lumen from a distal end of the plug member.

38. The method of claim 28, further comprising introducing one or more instruments through the passage to perform a procedure before inserting the plug member into the passage.

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